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Control Technology Center, 1989: A Year of Growth and a Promising Future

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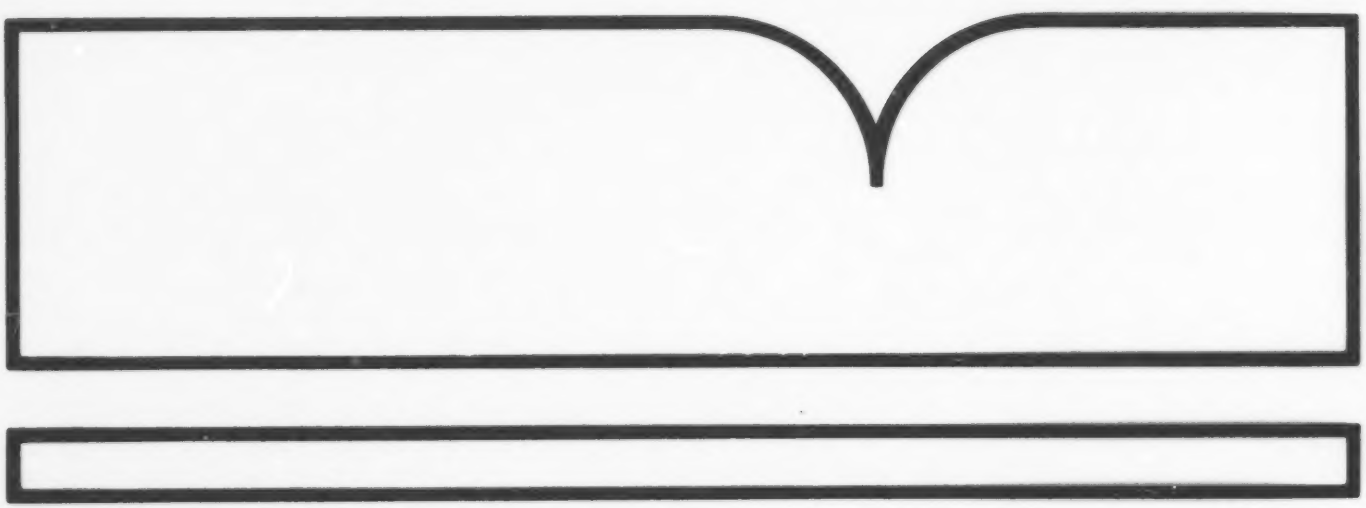

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March 1990

CONTROL TECHNOLOGY CENTER
1989
A YEAR OF GROWTH AND A PROMISING FUTURE

by

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16. ABSTRACT The report documents the activity of EPA's Control Technology Center (CTC) between October 1988 and September 1989. It discusses the program's history, its growth during fiscal year 1989 (FY89), and its plans for the future. In FY89, the CTC experienced significant growth. It received more than 800 calls for assistance, representing a 50% increase over FY88. More than 1000 requests for documents were filled. To further expand the scope of the CTC, outreach activities were also completed at three EPA regional offices and at least two state agencies. Services provided by the CTC are of three types: telephone HOTLINE calls, direct engineering assistance, and technical guidance. The CTC HOTLINE is a telephone number that state and local agencies can call for easy access to EPA personnel who can provide prompt assistance in a variety of ways including consultation, reference to pertinent literature, and access to EPA technical data and analyses. Direct engineering assistance projects are short term (typically 3 months or less), providing technical assistance to individual state or local agencies without regard to the projects' national utility. They are specific in nature and may not be applicable to problems in other locations. Technical guidance projects are long term (up to a year), broad in scope, and with national application and impact.

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PREFACE

As Co-Chairs of the Control Technology Center (CTC), we are introducing this document as one of the CTC's continuing efforts to inform all of the participants in the Nation's air quality programs about the CTC and its contributions to this program. The success of the CTC is a result of the need to share environmental technical assistance within the Nation's air quality programs and encourage cooperation among state and local air pollution control agencies, the U.S. Environmental Protection Agency's (EPA's) Regional Offices, other governmental agencies, and the three lead organizations, the Air and Energy Engineering Research Laboratory (AEERL), the Center for Environmental Research Information (CERI), and the Office of Air Quality Planning and Standards (OAQPS). As such, the CTC provides a unique and an expanding service to the goal of improved air quality. The CTC's efforts to provide technical support to state and local air pollution control agencies will enable these agencies to make the decisions required of them, based on a strong technical background and supporting research information. At the same time, the CTC should grow to fulfill the changing needs of the Nation's air quality program for technical assistance. We expect the CTC to fulfill these needs and predict the continuing and increasing demand for its technology transfer activities.

This report documents the activity of the CTC from October 1988 through September 1989 and its projected growth and plans for the future.

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NOTICE

This document has been reviewed in accordance with U.S. Environmental Protection Agency policy and approved for publication. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

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Many people are responsible for the success of the CTC. In particular, the author would like to recognize Robert J. Blaszczak, CTC Co-Chair, the members of the CTC Steering Committee, the Advisory Workgroup made up of representatives of the State and Territorial Air Pollution Program Administrators/Association of Local Air Pollution Control Officials (STAPPA/ALAPCO) and EPA's Region 3, and the staff who have responded to the requests for assistance. Even more important to the success of the CTC are the many callers from the pollution control community who have shown their support of and confidence in the CTC by using its services. The author would like to thank Beth Crabtree of Acurex (under EPA Contract 68-02-4701) for her assistance in preparing this report.

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BACKGROUND

The Air Toxics Strategy, adopted by the EPA in June 1985, encompasses concerns about both routine and accidental pollutant releases. It couples the responsibilities of traditional Federal regulatory programs, such as the National Emission Standards for Hazardous Air Pollutants (NESHAPs) and New Source Performance Standards (NSPS), with an increasing state and local regulatory responsibility to achieve reduced air toxics risk to the public. As a result of this shift in responsibility, EPA's 5-year Air Toxics Implementation Plan identified enhancement of state and local air toxics programs as one of six key components to accomplish EPA's strategy.

Since that time, additional responsibility has been placed on state and local air pollution control programs, which has emphasized the need to transfer expertise from the Federal level to the appropriate state or local level. This shift in responsibility has prompted EPA's ORD and OAQPS to develop and implement an innovative technical assistance program for state and local air pollution agencies and EPA's Regional Offices. Although the CTC began as an outgrowth of the needs identified in EPA's Air Toxics Implementation Plan, it has progressed to address a broader range of technical needs of the various agencies as they apply to air pollution control. Thus, the scope of the CTC has expanded significantly since its inception in FY87. The CTC is a collaborative effort among OAQPS's Emission Standards Division (ESD), ORD's AEERL, and CERI.

EXECUTIVE SUMMARY

INTRODUCTION

In June 1985, the Environmental Protection Agency (EPA) announced a strategy to reduce public exposure to toxic air pollutants in the ambient air. The strategy called for state and local authorities to take on additional regulatory roles, with EPA providing technical and financial assistance to their efforts. As a result of this shift in responsibility, EPA's Office of Research and Development (ORD), Office of Air Quality Planning and Standards (OAQPS), and Center for Environmental Research Information (CERI) developed and implemented the Control Technology Center (CTC). The CTC is an innovative technical assistance program for state and local air pollution agencies and EPA's Regional Offices. The program has since been expanded to include not only expertise on air toxics but also assistance in evaluating emission source and in control technology assessments associated with criteria pollutants, including particulate matter, oxides of sulfur and nitrogen, carbon monoxide, lead, PM10, and volatile organic compounds (VOCs). Even though the CTC is not EPA's only technical assistance effort for state and local agencies, it is unique in its structure which is described in this report. The CTC is designed to be flexible so that it can accommodate identified needs as they arise and respond quickly to those needs and requests for assistance.

CTC PROGRAM

The types of services provided by the CTC are divided into three categories: telephone HOTLINE calls, direct engineering assistance projects, and technical guidance projects. The CTC HOTLINE is a telephone number that state and local agencies can call for easy access to EPA personnel who can provide prompt assistance in a variety of ways including consultations, references to pertinent literature, and access to EPA technical data and analyses. The CTC HOTLINE number is (919) 541-0800. Direct engineering assistance projects are short term projects (typically 3 months or less), which provide technical assistance to individual state or local agencies without regard to the projects' national utility. They are specific in nature and may not be applicable to problems in other locations. Technical guidance projects are long-term (up to a year), broad scope projects, which have national applications and impacts.

In 1988, the CTC began issuing a year-end report at the end of each fiscal year to discuss the CTC's activities for the year. This report documents the activity of the CTC between October 1988 and September 1989. The report discusses the history of the program, its growth during fiscal year 1989 (FY89), and its future plans.

ORGANIZATION AND OPERATION OF THE CTC

Representatives of OAQPS, AEERL, and CERI met in early 1986, to discuss the CTC concept. They agreed that a Steering Committee would be formed to provide direction for the program. Steering Committee members were chosen from the management staff of the three groups with Chair and Chair-designate positions (referred to as the CTC Co-Chairs) rotated annually between AEERL and OAQPS. The Co-Chairs work with the staffs of ORD and OAQPS and may access contractor support to accomplish the goals of the CTC. The Steering Committee recognized that a close interaction with the state and local air toxics program staff was imperative. As a result, the Advisory Workgroup was established to work with the Steering Committee to ensure that the CTC effectively addressed the needs of state and local air toxics programs. Members of this group consist of state and local agency personnel and an air program representative from an EPA Regional Office. This basic program structure has not changed since the formation of the CTC. Figure 1 shows a block diagram for the CTC's functional structure.

A significant early decision reached by the CTC Steering Committee was to broaden CTC assistance from control of air toxics to control of all air pollutants including criteria pollutants. The Steering Committee made this decision when it realized that air pollution control programs at state and local agencies are interrelated and that their requests of the CTC would not be restricted to topics concerning control of air toxics alone. At that time, the CTC Steering Committee opted to be responsive rather than restrictive. Since that time other technical areas have been added as appropriate. The program currently encompasses emission source and control technology assessments associated with air toxics, criteria pollutants, carbon monoxide, and lead.

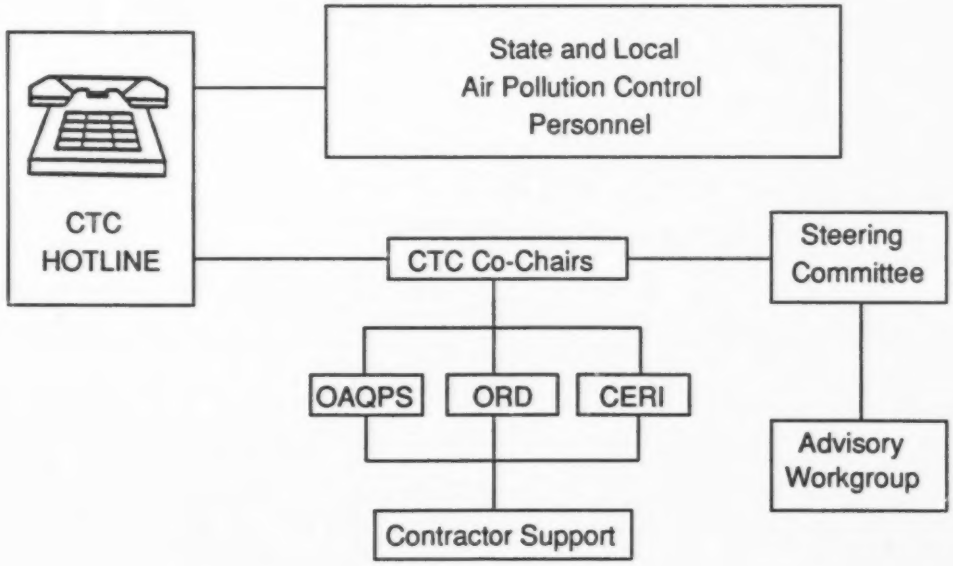

Figure 1. Participants in the CTC

The Steering Committee acknowledged that a set of guidelines for operation should be established to formalize the agreements reached and to facilitate future operation of the CTC. These guidelines define the purpose of the CTC, the membership and responsibilities of the Steering Committee, the duties of the Co-Chairs, and communication procedures among CTC members. Another early key decision regarded funding. Although each organization represented in the CTC receives separate funding, the three organizations agreed to pool resources for allocation by the Steering Committee. During FY89 the CTC had resources of $700,000 to conduct the various programs that it identified as appropriate for CTC support. Finally, the CTC decided to set guidelines that it would use in selection and ranking of projects for funding. The key guidelines established by the Steering Committee are:

- Needs identified by state and local agencies (as opposed to the CTC's perception of their needs)
- Urgency of each problem as perceived by the requesting state or local agency
- Availability of the expertise necessary to provide a useful product
- Breadth of applicability of the product to other state and local jurisdictions
- Investment of resources compared to the value of the product
- Cost of the project in relation to the funds available
- Relationship of the work to other ongoing projects in EPA (e.g., potential to combine efforts with or extend the work of other projects)

The Co-Chairs manage the day-to-day operation of the CTC. They are the first contact for state and local personnel usually through the CTC HOTLINE. The Co-Chairs are responsible for working with the managers in their respective organizations to select the appropriate technical personnel to respond to each request. They are knowledgeable of the status of projects in their respective organizations and keep the Steering Committee informed of the progress of each project. Finally, the Co-Chairs work with the technical personnel to ensure that each project is within the technical, budget, and schedule guidelines established by the CTC. The Co-Chairs have been delegated the authority to approve small projects (costing up to $10,000) without the Steering Committee's approval. This allows them to respond quickly to needs that may arise between meetings with the Steering Committee.

The Steering Committee meets monthly to discuss the CTC budget and the status of current projects. The meeting is also an opportunity for committee members to discuss potential projects and decide which projects should receive CTC funding. The Steering Committee is responsible for providing technical, budget, and schedule guidance for each project selected. The line managers of each organization are responsible for meeting the guidelines established by the Steering Committee and ensuring the quality of work performed for the CTC. In order to effectively combine the strengths of each organization, the Steering Committee asks that project teams be formed for each project costing more than $10,000 with representatives from at least two of the three participating organizations.

The Advisory Workgroup meets with members of the Steering Committee twice a year. The purpose of the meetings is to inform the Workgroup of current CTC activities and to discuss issues requiring guidance from this special group. Input from the Workgroup has been valuable in determining how to most effectively meet the needs of the state and local agencies.

TYPES OF CTC ASSISTANCE PROVIDED

The types of services provided by the CTC can be divided into three categories: telephone HOTLINE calls, direct engineering assistance projects, and technical guidance projects. The CTC HOTLINE provides a telephone number for state and local agencies to call for easy access to EPA personnel who can provide prompt assistance in a variety of ways including consultations, references to pertinent literature, and access to EPA technical data and analyses. The HOTLINE number is (919) 541-0800. A tracking system is in place to ensure that each request receives a prompt response. An effort is made in every case to provide some assistance. For example, even if no EPA staff or consultant expertise is available, a literature search may be performed .

The second type of service is direct engineering assistance. Engineering assistance projects are short term projects (3 months or less) which provide technical assistance to one state or local agency. These projects tend to be specific in nature and may not be applicable to problems in other locations. They may be the result of HOTLINE calls which require in-depth engineering analysis. In general, these projects have included review of control technology applications, plant inspections, and consultation on specific problems. Technical experts, whether EPA staff members or designated contractors, are assigned to these tasks.

Technical guidance projects, undertaken by the CTC in its third level of assistance, tend to be long-term (up to a year), broad in scope, and of national interest. They may be identified by a number of HOTLINE calls that are received concerning the same source or industry, a joint request from a group of air pollution agencies, or comments and suggestions by the Advisory Workgroup. These projects may take the form of control technology documents, microcomputer software, or seminars and workshops, depending on the method that is chosen as the most effective technology transfer mechanism.

CTC ACTIVITY DURING FY89

INTRODUCTION

The HOTLINE is the focal point of the CTC, and the number of calls received by the HOTLINE may be interpreted as a direct indication of the utility of the CTC to state and local agencies. HOTLINE activity has shown a major increase during FY89 over previous years. Although some of the more complex technical guidance and engineering assistance activities are initiated by written requests, the vast majority of projects are initiated by HOTLINE requests. The large volume of HOTLINE activity and project requests have prompted the Steering Committee to enlarge the scope of the CTC's assistance from specifically air toxics emissions to all types of emissions. The CTC, therefore, enlisted the help of other organizations to expand the base of available expertise to support CTC objectives.

The CTC is a program that has shown major growth since its formation in FY87. The number of HOTLINE calls and requests for assistance received from state and local agencies and EPA Regional Offices continued to grow. The HOTLINE received 803 calls in FY89, compared to 517 calls in FY88, which represents a 50% increase. Furthermore, engineering assistance and technical guidance projects have been well received with over 250 requests received for just one software program developed by the CTC. The CTC has received over 1000 requests for CTC reports documenting its activities and projects. Feedback from state and local agency personnel and groups such as STAPPA/ALAPCO has been positive. The continued increase in the number of calls and requests for assistance demonstrates the need for this program and potential for further growth. The dramatic increase in the number of HOTLINE calls received in FY89 must, therefore, be a testament to the success of the CTC concept and the technical service that it provides. This growth also indicates a continued increase in support requests in future years, especially in light of the stringent requirements likely to be imposed by the currently proposed Clean Air Act amendments.

CTC OUTREACH

The growth in the number of HOTLINE calls shows a direct correlation with activities to promote the assistance available through the HOTLINE. For the first 6 months of CTC operation starting in 1986, activity was constant at about six calls per month. During June 1987, the first outreach activities began. Over 3000 one-page placards were distributed at the Air Pollution Control Association (APCA) meeting in New York City. The first of several articles discussing the CTC appeared in the National Air Toxics Information Clearinghouse (NATICH) newsletter about the same time. The CTC Co-Chairs also sent over 500 letters to state and local agency personnel on the NATICH mailing list. For the next 6 months, about 20 calls per month were received. In January 1988, the CTC Co-Chairs presented information on the CTC at an Air Pollution Training Institute course for permit writers. Following the course the number of calls increased to about 40 per month.

Activities in FY89 concentrated on informing state and local agency personnel about the assistance available through the CTC. CTC staff visited various state agencies including Colorado and Texas, and EPA Regional Offices 3, 9, and 10, where both EPA and state agency staffs were present. The CTC also presented exhibits and a slide show at the APCA meeting in Dallas in 1988, and an exhibit at the 1989 Air and Waste Management Association (AWMA, formerly APCA) meeting in Anaheim, CA. These activities and the initiation and distribution of the CTC newsletter developed in FY89 coincide with another significant increase in HOTLINE activity. Each of these activities has resulted in increased requests for CTC assistance, with the number of calls received by the HOTLINE averaging 70 per month in FY89 as compared to the average of 43 calls per month in FY88.

CTC CAPABILITY ENHANCEMENT

The number of HOTLINE calls relating to ambient monitoring led to an agreement with EPA's Atmospheric Research and Exposure Assessment Laboratory, Research Triangle Park, NC (AREAL-RTP). A contact for the CTC was designated by AREAL's Laboratory Director. All HOTLINE calls related to ambient monitoring and sampling techniques are now sent to the designated AREAL contact. The calls are then forwarded to the appropriate experts who respond to the callers' questions. A similar agreement exists with EPA's newly established Air Risk Information Support Center (AirRISC). Calls related to health effects are referred directly to AirRISC. Other calls, which involve complex issues, may require assistance from other groups. For example, questions are sometimes received on the controls available for a particular emission stream and the health effects for the same emissions. In these cases, the issues are divided among the appropriate groups with the requestor receiving a separate response for each part of the request. Where expertise is not immediately available or the request is outside the scope of the CTC, the caller may be directed to the appropriate office not affiliated with the CTC. Thus, the increased scope of CTC HOTLINE and project requests has necessitated an increase in the technical capability of the CTC program, which may not be readily resolved with the present program technical base. However, the ability to direct the requestor to the appropriate EPA office has typically satisfied the requestor.

A continual effort is, however, underway to provide the broad technical capability in the areas of CTC responsibility. Efforts to broaden the base of expertise available through the CTC include the use of contractor assistance. Work assignments have been issued which allow the CTC to utilize contractor assistance for various CTC project requirements. This expansion not only broadens the base of available expertise, but also supplements EPA expertise when workloads may not allow in-house staff partcipation in technical efforts.

HOTLINE ACTIVITY

A dBASE program was written in Spring 1988 to track HOTLINE activity. The program has allowed manipulation of the information received through the HOTLINE calls and has identified areas of widespread interest. This data base also identifies the sources of calls and assists the CTC in supporting projects of broad applicability.

Figure 2 presents the history of the increase in HOTLINE calls received during FY88 and FY89. Calls received in FY89 show a significant increase over calls received in FY88. It is important to note that this figure does not include the hundreds of calls that have been received requesting CTC documents or that are made directly to EPA air program staff as a result of referrals by previous callers. The figure also excludes follow-up calls and many calls made directly to staff that were the result of earlier CTC contacts. Although these calls escape official documentation, the increase in telephone volume has been noted by the technical staff. Based on HOTLINE data, the number of requests for documents, and records and estimates of calls made directly to EPA staff, the CTC receives approximately 200 requests for assistance per month. Figure 3 illustrates the overall increase in FY89 of officially documented HOTLINE calls over FY88 calls.

During FY89 803 calls were received by the HOTLINE. Figure 4 shows the distribution of FY89 calls among Regional Offices and state and local agencies. The majority of the calls (about 56%) are received from state agencies. This number includes calls received from the District of Columbia and U.S. Territories. Fewer calls are expected from EPA Regional Offices since there are only 10 Regional Offices in the U.S., and they were not initially targeted as primary CTC clients. The number of calls

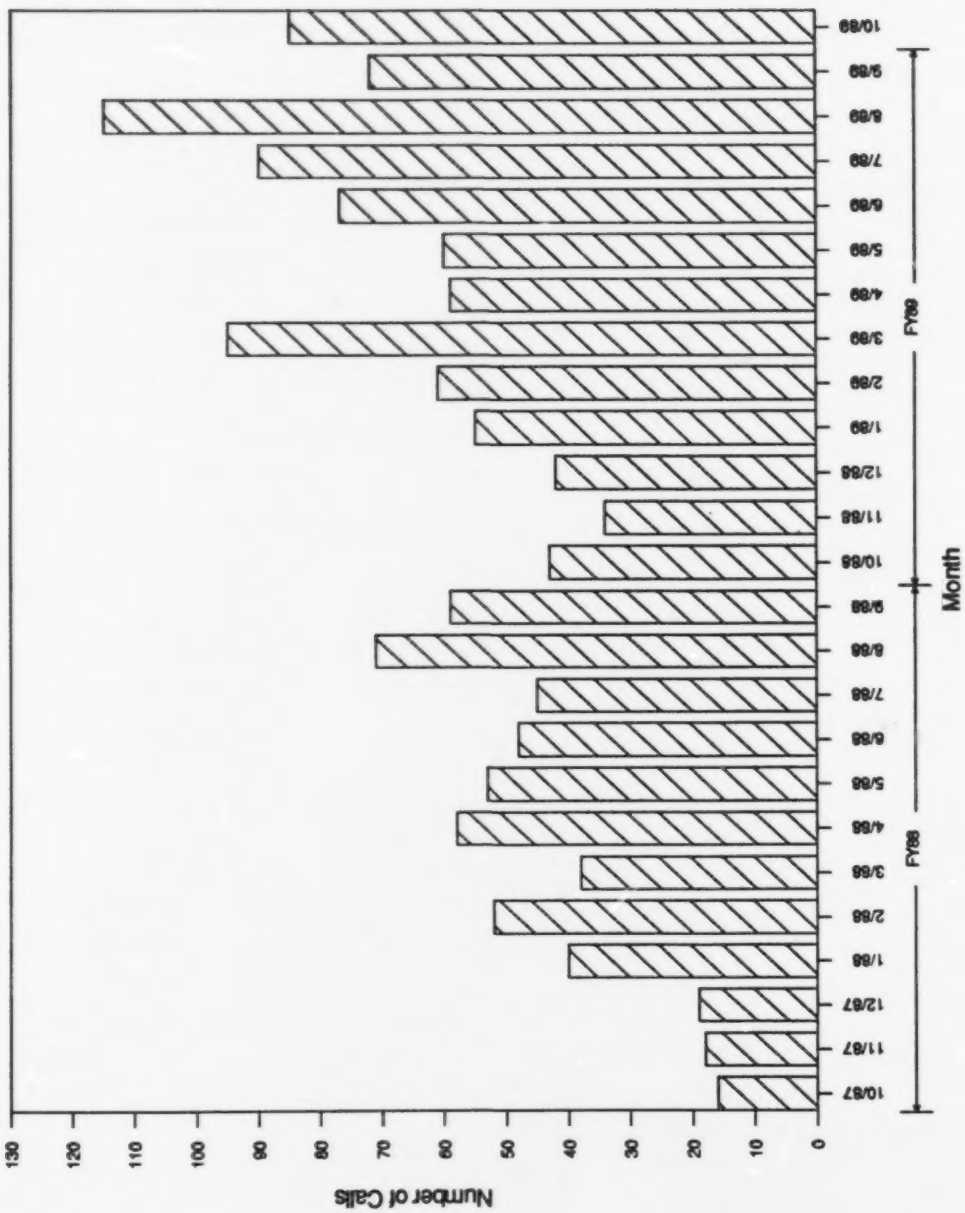

Figure 2. Numbers of HOTLINE calls received each month in FY88 and FY89

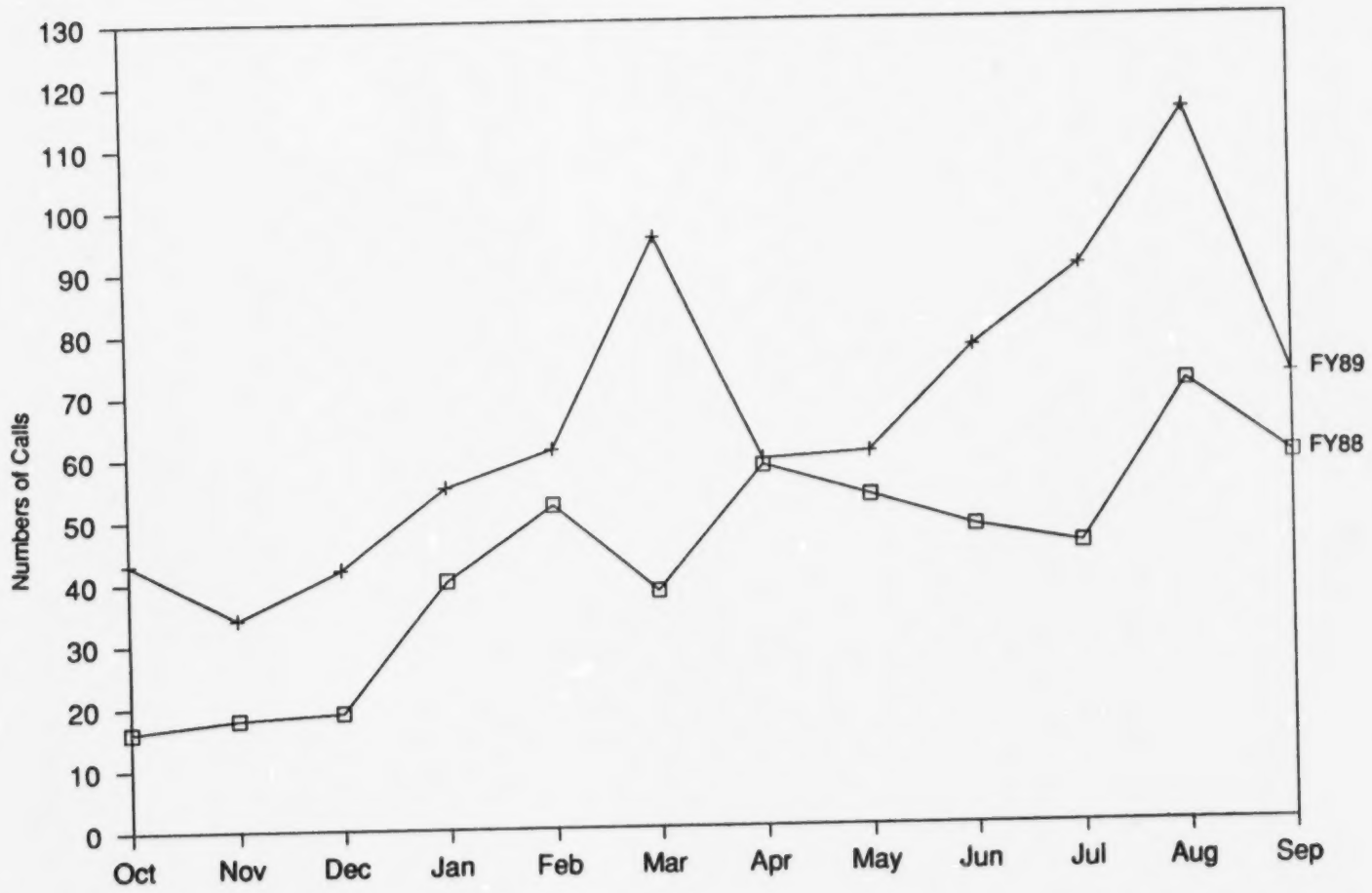

Figure 3. Comparison of numbers of HOTLINE calls received in FY88 and FY89

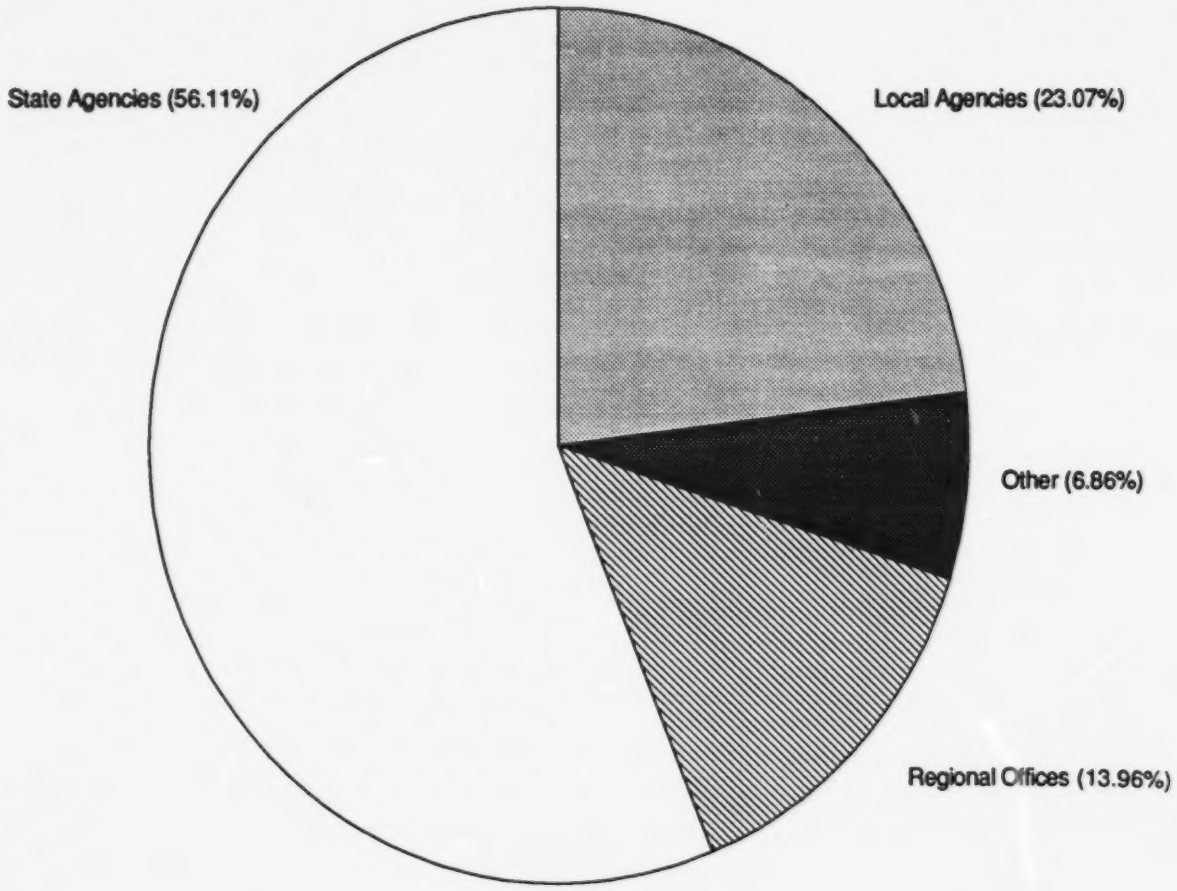

Figure 4. Distribution of FY89 calls by origin

received from local agencies (23.07%) suggests that they may not have been adequately informed of the assistance available through the CTC. Since local agencies employ approximately the same number of people as state agencies, it is reasonable to expect that a similar number of calls would originate from each. The "other" calls (6.86%) came from universities, EPA contractors, non-Regional EPA Offices, and foreign countries.

Figure 5 shows the number of calls from state agencies within each EPA Region. A total of 675 calls have been received from state agencies within the 10 Regions. A significant number of callers represented in this figure called more than once. Figure 6 shows the distribution of all calls received in FY89 among the states. The low number of calls received from some Regions and states may provide a basis for targeted outreach activities in the future.

The data base was also analyzed to determine which processes and pollutants prompted HOTLINE calls. Tables 1 and 2 show the results. Processes with similar control strategies were combined, as were similar pollutants. The tables reflect only processes and pollutants for which two or more calls were received.

The CTC projects initiated in FY89 correspond to the processes which have received the largest number of calls. Nine of the CTC's technical guidance and engineering assistance projects (relating to painting and coating, miscellaneous incineration, municipal waste incineration, fiberglass manufacturing, printing, hospital waste incineration, and tire burning) correspond to processes which rank in the top 10 processes shown in Table 1. The topics of other projects which appear in Table 1 are waferboard, photographic products, wood products, smelters, automobile refinishing, air stripping, steel mills, power plants, kraft pulp and paper mills, abrasive blasting, electrostatic precipitators, foam blowing, and natural gas and petroleum products.

The processes which were the subject of two or more HOTLINE calls represent about 61.3% of the total calls received. Many calls received were general in nature and did not relate to specific processes. Table 2 shows that almost 95% of the calls received related to one of the chemicals listed in the table. Correlations between this list and the CTC projects are not as obvious, since most of the CTC projects relate to processes and include multiple pollutants. However, most of the projects relate to VOCs or air toxics. The number of calls received relating to VOCs and other pollutants which are not air toxics confirms an early decision made by the CTC Steering Committee to expand the scope of the CTC assistance from just air toxics. Four projects have dealt with specific chemicals which do appear in Table 2, benzene, formaldehyde, MeCl, and toluene. It is interesting to note that the first 10 processes and industries in Table 1, representing approximately 35% of the calls, relate to VOCs and toxics.

To ensure the continued efficiency of the HOTLINE interaction with targeted agencies, the program management periodically initiates random inquiries of HOTLINE participants to ascertain their degree of satisfaction with HOTLINE response. The overwhelming consensus during the random inquiries has been favorable.

Figure 5. Distribution of calls received by region

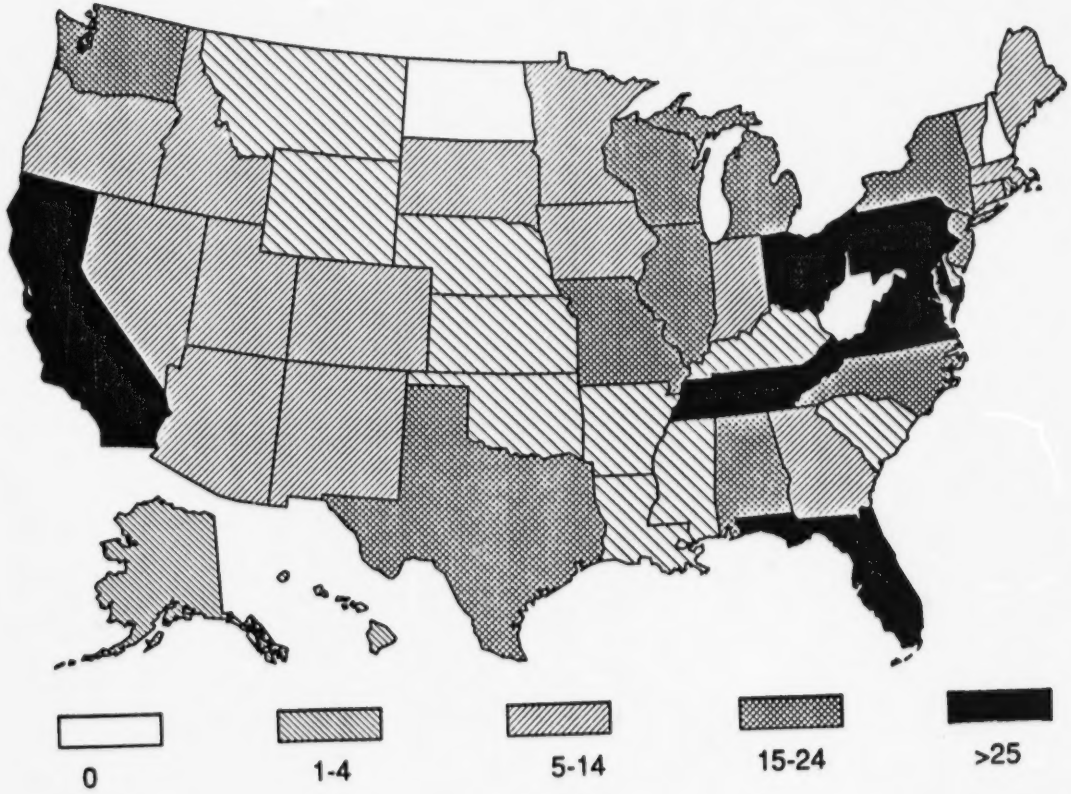

Figure 6. Distribution of calls received by state

Table 1. Distribution of Calls Received by Process*

Process	Number of Calls	Percent of Total
Painting & Coating	52	6.48
Incineration (Miscellaneous)	42	5.23
Incineration, Municipal Waste	31	3.86
Fiberglass Manufacturing	29	3.61
Printing	27	3.36
Incineration, Hospital	25	3.11
Boilers	22	2.74
Asphalt	21	2.62
Chemical Manufacturing	19	2.37
Tire Burning	18	2.24
Treatment, Storage, and Disposal	17	2.12
Smelters	15	1.87
Storage Tanks	15	1.87
Kraft Pulp/Paper Mills	14	1.74
Air Stripping	13	1.62
Natural Gas & Petroleum Products	12	1.49
Food & Beverage Manufacturing	11	1.37
Foam Blowing	10	1.25
Steel Mills/Electric Arc Furnaces	10	1.25
Electroplating	9	1.12
Wood Products	9	1.12
Furniture Manufacturing	8	1.00
Landfills	8	1.00
Plastic Manufacturing	8	1.00
Power Plants	8	1.00
Hospital Sterilizers	7	0.87
Abrasive Blasting	6	0.75
Chrome/Electroplating	6	0.75
Foundries	6	0.75
Gas Turbines	6	0.75
Rubber Curing & Reclamation	6	0.75
Cement Manufacturing	5	0.62
Coke Ovens & By-Products	5	0.62
Auto Refinishing	5	0.62
Cement Manufacturing	5	0.62
Degreasers	5	0.62
Dust Control	5	0.62
Fertilizer	5	0.62
Gasoline Handling	5	0.62
Glass Manufacturing	5	0.62
Waferboard	5	0.62
Diesel Engines	4	0.50

(Continued)

Table 1. Distribution of Calls Received by Process (Continued)

Process	Number of Calls	Percent of Total
Fabric Manufacturing	4	0.50
Metal Recycling	4	0.50
Pharmaceuticals	4	0.50
Animal Rendering	3	0.37
Dry Cleaning	3	0.37
Brick Manufacturing	3	0.37
Electrostatic Precipitators	3	0.37
Explosives	3	0.37
Galvanizing	3	0.37
Mining	3	0.37
Refrigeration	3	0.37
Rock Quarries	3	0.37
Welding	3	0.37
Accidental Releases	2	0.25
Coal Handling	2	0.25
Automobile Manufacturing	2	0.25
Concrete Crushing	2	0.25
Crematoriums	2	0.25
Fumigation	2	0.25
Grain Processing	2	0.25
Incineration, Hazardous Waste	2	0.25
Metal Fabrication	2	0.25
Oil Refining	2	0.25
Open Burning	2	0.25
Photographic Products	2	0.25
Rotary Kilns	2	0.25
Soldering	2	0.25
Solvent Substitution	2	0.25
Soybean Processing	2	0.25
Tape & Labels	2	0.25
Tire Manufacturing	2	0.25
Other Processes	181	22.54
TOTAL	803	100.00

*Figures represent processes for which two or more calls were received and the percentage of the number of calls for each process to the total number of calls received in FY89.

Table 2. Distribution of Calls Received by Pollutant*

Pollutant	Number of Calls	Percent of Total
Volatile Organic Compounds	213	26.53
Air Toxics (General)	92	11.46
Particulates	56	6.97
Nitrogen Oxides	25	3.11
Styrene	16	1.99
Chlorofluorocarbons	14	1.74
Benzene	12	1.49
Ammonia	11	1.37
Sulfur Oxides	11	1.37
Dioxins	10	1.25
Hydrogen Chloride	10	1.25
Lead	10	1.25
Polychlorinated Biphenyls	10	1.25
Carbon Monoxide	9	1.12
Ethylene Oxides	9	1.12
Odor	9	1.12
Formaldehyde	8	1.00
Metals	7	0.87
Perchlorethylene	5	0.62
Toluene	5	0.62
Carbon Disulfide	4	0.50
Chloroform	4	0.50
Chlorine	4	0.50
Methylene Chloride	4	0.50
Arsenic	3	0.37
Asbestos	3	0.37
Chromium	3	0.37
Sulfur	3	0.37
Beryllium	2	0.25
Chromic Acid	2	0.25
Dust	2	0.25
Ethylene Glycol	2	0.25
Isopropyl Alcohol	2	0.25
Pesticides	2	0.25
Phosgene	2	0.25
Trichlorethylene	2	0.25
Toxics	2	0.25
Visible Emissions	2	0.25
Other Pollutants	213	26.53
TOTAL	803	100.00

*Figures represent pollutants for which two or more calls were received and the percentage of the number of calls for each pollutant to the total number of calls received in FY89.

ENGINEERING ASSISTANCE AND TECHNICAL GUIDANCE PROJECTS

Table 3 lists the 27 engineering assistance and technical guidance projects that received CTC funding in FY89. The list demonstrates the breadth of CTC activity during the year. The projects range from efforts with very specific and unique scopes to efforts with broad applicability and interest. Report titles are shown for completed projects, which are described in Appendix A. Summaries of FY89 projects and current projects are presented in Appendix B. These projects represent a total program expenditure of over $571K. In FY89 the CTC has complied with over 800 requests for reports on completed CTC projects.

All products resulting from CTC projects are made available to state and local agencies free of charge. Industries and consultants are directed to the National Technical Information Service (NTIS) for documents. The technical guidance products, as anticipated, have found large audiences. For example, of the more than 1000 documents requested from CTC, over 300 requests have been received for two technical guidance documents alone, "Air Stripping of Contaminated Water Sources—Air Emissions and Controls" (EPA-450/3-87-017; NTIS PB88106166) and for the computerized permit review program, "Tutorial Manual for CAT (Controlling Air Toxics), Version 1.0" (EPA-600/8-88-092a, NTIS PB89 158745). The engineering assistance documents have been requested by a much smaller number of people which may be due to the specificity of these projects.

Table 4 shows a breakdown of the CTC's FY89 projects by project type. Seven of the 27 projects are related to control technology evaluation, and seven are related to emission characterization. Industry and process studies were the next most frequent type of project undertaken by the CTC. Of the 27 CTC projects, 8 are engineering assistance and 19 are technical guidance.

Table 3. CTC Projects Funded in FY89

Project Title	Amount Funded in FY89 ($K)
Affordability Analysis of Lead Emission Controls for a Smelter-Refinery	5.0
Air Toxic Emissions from an Integrated Steel Plant	10.0
Alaska Oil Spill Support	23.0
"Characterization of Emissions from the Simulated Open Burning of Scrap Tires"	4.3
Condensibles Testing Method	15.0
Control of Air Emissions from Wastewater Treatment Facilities	25.0
Control of Condensibles	20.0
"Controlling Air Toxics" (CAT) Version 2	7.0
Electrostatic Precipitator Model	10.0
Emissions from Asphalt Roofing	10.0
Emissions from Maryland Printing Operations	5.0
Emissions from Outdoor Abrasive Blasting	10.0
Emissions from Solder Manufacturing Plant	15.0
Evaluation of Arsine Scrubber in San Diego	3.4
Evaluation of Emission Control Devices at Waferboard Plants	50.0
"Evaluation of Emission Sources from Creosote Wood Treatment Operations"	3.0
Fiberglass Manufacturing	15.0
Formaldehyde Emissions from the Manufacture of Veneer Wood Products	10.0

(Continued)

Table 3. CTC Projects Funded in FY89 (Continued)

Project Title	Amount Funded in FY89 ($K)
"Handbook: Control Technologies for Hazardous Air Pollutants" (HAP Manual Update)	71.0
NO_x Control Technology Data Sourcebook	75.0
"Operation and Maintenance of Hospital Medical Waste Incinerators" and "Hospital Incinerator Operator Training Course"	30.0
Powder Coatings Technology Update	40.0
"Source Characterization and Control Technology Assessment of Methylene Chloride Emissions from Eastman Kodak Company, Rochester, NY"	5.0
Surface Impoundment Modeling System (SIMS) Users' Manual	15.5
Ultrasonic Cleaning of Rotogravure Cylinders	26.3
VOC Control Applications for the Flexible Packaging Industry	58.0
VOC Controls for Polystyrene Foam Manufacturing	10.0

Table 4. CTC Projects by Type

Project Type	Total	Percent of Total
Control Technology Evaluation	7	26.0
Emission Characterization	7	26.0
Industry and Process Studies	5	18.5
Software Tools*	3	11.1
Training	3	11.1
Permitting Assistance	1	3.7
Test Methods	1	3.7
Total	27	

*Software tools are aimed at permit review, engineering evaluations, and estimation of emission factors.

THE FUTURE OF THE CTC

MANAGEMENT REVIEW

In early 1988, the CTC Steering Committee asked EPA's Office of Management Systems and Evaluation (OMSE) to evaluate the effectiveness of the CTC. The Steering Committee believed that the evaluation would serve to document the efficiency of the CTC management structure and results to date and provide suggestions to improve identified deficiencies in the program. Members of OMSE met with representatives from ORD and OAQPS to discuss the CTC's objectives for the study and to learn more about the program. OMSE representatives also met with the Advisory Workgroup to solicit input on the most effective way to collect information from state and local personnel. In February 1989, OMSE provided the CTC with a report of its findings and recommendations. Areas examined by OMSE were: effectiveness of CTC assistance, outreach activities, relationships with Regional Offices, project selection, and management support and involvement.

In response to OMSE's recommendations, the CTC took several steps toward improving outreach efforts, communication within EPA on CTC activities, recognition of EPA staff for contributions to CTC projects, and user feedback mechanisms. Upon OMSE's recommendation, the CTC also modified the HOTLINE form, began to track calls received directly by EPA staff from state and local agencies more closely, pursued new means of obtaining travel funding, and obtained additional staffing to help the CTC run more smoothly.

OUTREACH

The quarterly newsletter developed by the CTC as an outreach effort has proven to be very successful. The "CTC News" highlights current CTC efforts and recently completed projects. The newsletter also provides the titles and ordering information for reports on those projects. The quarterly publication circulates the CTC HOTLINE number, and provides a form for those wishing to be added to the CTC News mailing list, and solicits feedback on CTC assistance. The mailing list for the CTC newsletter, which has received wide acclaim, has grown to over 1000 addressees. In addition to the "CTC News," the Center also revised the CTC brochure for distribution at AWMA meetings and to those interested in learning more about the CTC.

The HOTLINE data base has assisted the CTC in improving communication within EPA and recognition of staff participation in CTC efforts. The data base is used to generate periodic reports for management on the amount of time spent by individual staff members from the various branches and divisions on HOTLINE calls. A new data base will soon be implemented to provide similar information on full-scale CTC projects.

The CTC Co-Chairs also initiated a program of Regional Office and state and local agency visits to further promote CTC services. During these visits both Regional and state and local agency personnel are briefed on the objectives of the CTC. By September 1989, CTC staff had visited three Regional Offices and state and local agencies. Plans are now underway to brief the remaining Regional Offices on CTC services.

FUTURE DIRECTION

The CTC management is constantly identifying and reviewing ideas to expand CTC services for its clients. Included among those new ideas are additional update briefings to various agencies, expansion of the expertise base, and an increase in the scope of research activities. The CTC is generally perceived, both within and outside of EPA, as a successful program. Therefore, future plans are based on continuing the CTC's work while improving the existing system and looking for areas of improvement.

Although the CTC has been informally linked with other groups such as AirRISC and the BACT/LAER Clearinghouse, coordination between these groups and others should be improved. Already, the CTC and AirRISC work together to handle requests for assistance which involve control technology and health effects. These three groups as well as the Regional Centers and the Superfund Amendment and Reauthorization Act (SARA) Title III HOTLINE all provide assistance to state, local, and Regional air pollution agencies.

The HOTLINE data base program will continue to generate reports for several purposes. The types of tables presented earlier on HOTLINE activity will be generated to aid in selection of projects. Reports showing who is responding to the HOTLINE requests and the amount of time being spent on this activity will continue to be sent to managers in each organization. The reports will inform the managers of HOTLINE activity and recognize those contributing to the program. Reports are also sent to each Regional Office detailing the number of calls from each Region, and their origins and subjects.

The CTC management will continue to expand the CTC's outreach activities. This will include additional briefings and presentations to targeted agencies and organizations. In addition, due to the low number of CTC requests from 3 of the 10 Regions, encompassing 10 states, further state and Regional outreach activities will be initiated.

Future plans call for the enhancement of the expert pool by inviting other agencies with needed expertise to participate in the CTC program. Preliminary contacts have been made with STAPPA and ALAPCO to request that candidate experts willing to participate be identified.

CONCLUSIONS

The establishment of the CTC has proven to be an effective mechanism for technology transfer from EPA to state and local agencies and EPA Regional Offices. The structure of the CTC has allowed cooperation among the three groups involved (OAQPS, AEERL, and CERI) with input from STAPPA/ALAPCO and the Regional Offices. The CTC's team approach to its projects has combined the expertise and experience of regulatory and research and development personnel to maximize the quality and depth of the assistance provided.

The three levels of assistance have each been used with positive feedback from state and local agency personnel. The number of HOTLINE calls and requests for assistance continues to increase. Many callers continue to call with new requests. Over 1000 requests have also been received for the documents and software products resulting from engineering assistance and technical guidance projects. The increasing rate of requests for CTC assistance, and especially the repeat users of CTC's services, is indicative of the success of the program.

The magnitude of the demand for CTC services and the positive feedback received indicate that this program has satisfied a need among state and local agencies that have used its services. The continued increase in the number of HOTLINE calls and requests for assistance suggests that the CTC may have an even greater role to play in the overall air program. The CTC should, therefore, continue to expand its technical base and resources to satisfy the anticipated demand.

APPENDIX A

SUMMARY OF COMPLETED PROJECTS

"Characterization of Emissions from the Simulated Open Burning of Scrap Tires" (1)*

In response to several HOTLINE requests, the CTC funded Air and Energy Engineering Research Laboratory (AEERL) experiments simulating open-air burning of scrap tires. The research focused on providing qualitative and quantitative estimates of emissions resulting from open-air tire burning. AEERL scientists conducted experiments in a specially designed burn hut containing a high-volume air-handling system that effectively simulated open-air combustion. The scientists burned large (one-sixth tire cut in the shape of a pie wedge) and small (2-in. square) chunks to compare the effect of sample size on burn rate and emissions. The researchers analyzed gas and particulate emission samples for metals, volatile and semivolatile organics, and fixed gases (O_2, CO_2, CO, and SO_2).

The experiments showed that tire combustion produces numerous hydrocarbons, including a significant amount of polycyclic aromatic hydrocarbons, some of which are known carcinogens. The research also revealed that tire burning emits metals such as lead and zinc. The team identified two distinct types of burning that occurs during tire combustion, which cause different emissions. These burning patterns correspond to the material in the tread layers and the belt layers of the tires. The CTC published a report documenting its findings on tire combustion.

"Chemical and Biological Characterization of Products of Incomplete Combustion from the Simulated Field Burning of Agricultural Plastic" (2)

The CTC responded to the State of Florida's concern about open field burning of black agricultural plastic used by farmers to contain moisture and control weed growth. state officials were concerned about products of incomplete combustion released during the field burning of these plastics and about the fate of pesticides applied during the growing season. The Florida Department of Environmental Regulation considered requiring more efficient means of incineration of the plastic mulch, such as air-curtain incinerators, in which jets of air are forced across and into a pit causing improved mixing of air and combustion products.

In response to the state's request for help, the CTC assigned an engineer, from EPA's Air and Energy Engineering Research Laboratory, Office of Research and Development, to examine the emissions resulting from burning agricultural plastic. With the help of scientists from Acurex Corporation, EPA's Health Effects Research Laboratory, and Environmental Health and Research Testing, Inc., the team performed experimental burns comparing simulated pile burning and simulated forced air curtain incineration. They analyzed emissions for combustion gases, volatile and semivolatile organics, particulate material, and toxic and mutagenic activity. They also tested emission samples for the presence of several pesticides.

The team identified no residual pesticide compounds from the samples. They found, however, that forced-air-curtain burning decreased burning time compared to pile burning and also reduced the emission of particulate concentrations. They identified no significant difference in emission from organic compounds in the two burn conditions. Mutagenic activity from these samples was similar to that measured from residential wood burning.

(*) Numbers in parentheses indicate references listed at the end of this appendix.

The CTC provided the State of Florida with a technical paper discussing the team's findings. The research paper was published in the Journal of the Air and Waste Management Association. The success of this project led the CTC to initiate experiments on automobile tire burning and other projects in incineration research.

"Control Technology Assessment for Air Emissions from Wastewater Treatment Operations" (3)

The West Virginia Air Pollution Control Commission requested an evaluation of a wastewater treatment system at a chemical company which manufactures C_1-chlorinated solvents such as methylene chloride, carbon tetrachloride, and chloroform. The wastewater generated at the plant is treated in organics/solids decanters, and a stream stripper is used to recover volatile organics before discharge. The operations cause significant air emissions with high concentrations of volatile organic compounds (VOCs).

The CTC project team visited the plant to evaluate its controls and identify and evaluate other options available to control the plant's emissions of VOCs. Other field data gathered previously were used to estimate the total annual emissions of VOCs and the maximum rate of emissions caused by the operation. Control options evaluated were condensation of organics in a refrigeration system, carbon adsorption, and a combination of the two control techniques.

The wastewater at the chemical plant consisted of equipment wash water and rainfall from diked areas around the plant. The wastewater was kept in storage until the storage tanks were sufficiently full to operate the steam stripper, which ran about 75 % of the time. When the steam stripper was started, it operated continuously until all of the wastewater in storage was steam-stripped. Secondary vent condenser outlets and conservation vents on decanter and feedwater storage tanks opened whenever liquid was pumped into the tanks. The vents were found to be the primary VOC air emission points at the facility.

Analysis of the operation's duct system revealed that connecting the feedwater tank headspace to the decanter tank headspace by a duct would allow displaced vapors to enter the decanter tank during the liquid pumping process. The duct would be large enough to handle the flow rate with a minimal pressure drop preventing the need to open the conservation vent. This inexpensive rearrangement of the duct system would reduce VOC emissions from the feedwater storage tank and therefore the total VOC load on a control system.

A forced drive could also be implemented downstream of the control system with a fan that turned on automatically when the steam stripper started up. The system would prevent pressure buildup in the decanter and feedwater tanks during filling operations and subsequent opening of the conservation vents. Installation of traps on the decanter tank overflow plumbing was also identified as an effective measure to stop discharge of vent gases for a proper vent control system.

Evaluation of control alternatives for the wastewater treatment facility revealed that use of a secondary vent condenser with refrigerated glycol cooling followed by carbon adsorption offered the lowest cost for high organics removal efficiency. An impact analysis was provided to the State of Virginia.

"Evaluation of Emission Control Options at Leeds Architectural Products" (4)

The Connecticut Department of Environmental Protection (CTDEP) requested assistance from the CTC in evaluating alternatives controlling volatile organic compound (VOC) emissions from a specialty aluminum coating facility. The facility had presented a best available control technology (BACT)

evaluation to the CTDEP stating that added emission control was not economically feasible. The CTDEP questioned the conclusion and requested an independent evaluation.

The CTC identified several broad options for reducing emission that it planned to investigate. The options were:

- Conventional VOC control devices to control the existing exhaust streams,
- Conventional methods to reduce exhaust flow and treatment with conventional VOC control devices, and
- Novel or developmental methods of achieving more cost-effective emission control.

The CTC, an EPA contractor, and CTDEP visited the facility to observe the operations and gather data for a technical and economic evaluation of control options. They concluded that controlling emissions would permit the facility to increase production, and that the revenues from the production increase could help offset the added cost of the emission controls. The cost data provided in the report could also be used to estimate emission rates and costs of alternatives involving partial emission control.

"Evaluation of Emission Sources from Creosote Wood Treatment Operations" (5)

The Virginia Air Pollution Control Board requested information from the CTC about odor and potential air toxics control at creosote wood treatment facilities. The EPA's Emission Standards Division conducted an engineering evaluation of the wood preserving process for the CTC. Two wood treatment plants were visited and their methods of creosote wood treatment compared. The CTC developed a report that discusses the history of the wood preserving industry, various wood preserving techniques, and the air emissions associated with them.

Wood preservation involves pressure or thermal impregnation of chemicals into wood, enabling the wood to resist attack by fungi, insects, and marine borers. Preservation extends the service life of timber, conserving forestry resources, reducing operating costs for industries that use timber such as utilities and railroads, and ensures stronger and safer support structures. Wood preservatives used in the U.S. primarily include pentachlorophenol, creosote, and aqueous formulations of arsenic, copper, chromium, or ammonia. These chemicals prevent the attack of living organisms on the wood. Their use, however, must be carefully controlled because these chemicals are also toxic to humans and aquatic organisms.

The CTC document discusses each preservative and the different processes used to treat various wood products, concentrating on the use of creosote for the treatment of railroad crossties. The report also focuses on the emission sources associated with the release of odor and air toxics and the technologies currently used to control them.

"Operation and Maintenance of Hospital Medical Waste Incinerators" and "Hospital Incinerator Operator Training Course" (6) (7) (8) (9)

In response to a request by the State of Maryland, the CTC developed an operation and maintenance (O&M) manual and training course for hospital waste incinerator operators. The O&M manual was designed as a technical guidance document on proper O&M procedures for hospital waste incinerators and related pollution control equipment. The manual may be used by Federal, state, and local agency personnel, hospital waste management personnel, and hospital incinerator operators. The training course covers the basic principles of combustion; proper design, operation, and maintenance of

hospital waste incineration systems; and the operator's role in reducing air pollution and complying with regulations.

Increased public awareness of the disposal of medical waste has prompted the EPA to develop a basic training course for hospital waste incinerator operators. The EPA believes that proper operation and maintenance of hospital incinerators can minimize air emissions. The course provides operators with a basic understanding of the principles of incineration, good operating practices, and their relationship to air pollution control. Volume I, the Student Handbook, is intended not only as a text during the course but as a reference for operators after the course. Volume II includes classroom materials as well as copies of the presentation slides and student worksheets. Volume III, the Instructor Handbook, includes the course description, an agenda, the course goals, lesson plans, and pre-test and post-test materials.

Data gathered in the first phase of this study, on the proper O&M of hospital waste incinerators and associated air pollution control devices, are presented in the O&M Manual. The document provides an overview of proper O&M procedures and serves as a basis for the development of the training materials. It was also designed to serve as a technical guide for Federal, state, and local agencies, and hospital waste management personnel and incinerator operators. The O&M manual covers operation, maintenance, control and monitoring instrumentation, as well as recordkeeping and safety guidelines.

Use of these materials by hospitals, and Federal, State, and local agencies leads to a better understanding of hospital waste incinerators and related emission controls by incinerator operators and supervisory staff. This increased awareness should result in more efficient use of the incinerators and emission control equipment, and therefore, help reduce air emissions from the incineration of hospital waste.

"Source Characterization and Control Technology Assessment of Methylene Chloride Emissions from Eastman Kodak Company, Rochester, NY" (10)

The New York State Department of Environmental Conservation initiated an assessment of emission control technologies for dichloromethane (DCM) sources at the Eastman Kodak Company at the Kodak Park Facility in Rochester, NY, to bring the facility into compliance with the state's air pollution regulations. DCM is used in the manufacture of cellulose triacetate photographic film support. The assessment was a result of the state's reduction of the acceptable ambient level for methylene chloride (MeCl) and Kodak's plans to increase cellulose triacetate film production. New York State requested assistance from the CTC in the identification and evaluation of viable control technologies for this source.

In response to the request, the CTC sent a team of engineers to identify DCM emissions sources at the facility. The team then evaluated the potential control technologies that might be applied to the identified emissions sources and provided a cost analysis of different control options for four of the uncontrolled emission sources.

The largest source of DCM emissions at Kodak Park was determined to be from the production of cellulose triacetate film. This process involves the dissolving of triacetate pellets in MeCl and other solvents to produce a viscous material which is then pressed onto a polished surface forming a thin sheet. The sheet is dried at high temperatures giving off MeCl and other solvents. This process was responsible for over 80% of the total DCM emissions from the facility. Other sources of DCM emissions included emissions from pumps, valves, seals, flanges, and other equipment used at the plant, as well as from secondary losses from wastewater.

The CTC documented its findings and recommendations in a report that is available to state and local agencies and others wishing information on the control of MeCl emissions.

"Surface Impoundment Modeling System (SIMS) Users' Manual" (11)

The CTC responded to requests from state and local air pollution control agencies for assistance in preparing volatile organic compound (VOC) and air toxics emission inventories. Together with the Technical Support Division of the Office of Air Quality Planning and Standards (OAQPS), the CTC developed SIMS, a menu-driven personal computer system. State and local agencies can employ SIMS to estimate emissions of organic compounds from impoundments at hazardous waste treatment, storage, and disposal facilities (TSDFs), publicly owned treatment works (POTWs), industrial wastewater treatment facilities, and other similar operations.

OAQPS developed a set of emission models for sources including surface impoundments to estimate VOC emissions based on input parameters such as impoundment type and dimensions, influent flow rate, and inlet pollutant concentrations. The CTC incorporated these models into the SIMS software, which includes default values for use by state and local agency personnel who may not have information on all of the input parameters required by the models.

The SIMS program applies to flow-through and disposal impoundments and turbulent or quiescent flow. The program can also account for biodegradation when appropriate. The user must provide the type of impoundment, whether it is used for biological treatment, and the total flow into the impoundment. The user must also supply the total surface area of the impoundment and the type of industries discharging wastewater into the impoundment. The agency using SIMS may supply as much additional information as is available and use the program's default values as necessary.

Impoundments at facilities such as TSDFs, POTWs, and industrial wastewater treatment facilities may account for a significant amount of the total VOC or air toxic emissions in some areas of the U.S. SIMS provides state and local air pollution control agencies with a valuable tool in estimating these emissions.

"Ultrasonic Cleaning of Rotogravure Cylinders" (12)

The CTC conducted a technical guidance project to produce a document on the general applicability of aqueous ultrasonic cleaning in the rotogravure printing process and other graphic arts processes, and to identify the benefits and costs of ultrasonic cleaning. Ultrasonic cleaning of equipment used in these industries may reduce organic solvent use, volatile organic compound (VOC) emissions and solvent waste generation.

Ultrasonic cleaning employs the scrubbing action created by the passage of ultrasonic waves through a liquid cleaning medium. The method may be used by other industries to clean a wide variety of parts, assemblies, and finished goods. The benefits of this process include high speed cleaning and a high level of cleanliness. Also, aqueous-based cleaning liquids eliminate the emission of VOCs from cylinder cleaning and reduce the problems associated with the handling of hazardous wastes.

Aqueous ultrasonic cleaning may be applicable to all rotogravure printing operations which reuse cylinders such as the flexible packaging industry, vinyl printing, and wallpaper printing. The CTC report provides a list of potential applications for several selected cleaning solutions. The list identifies the solvent/solution and cleaning methods for equipment consisting of various types of metals. The methods include different combinations of presoaking, ultrasonic immersion, rinsing, solvent spraying, vapor rinsing, and drying. A combination of aqueous solution and solvent cleaning is used in some cases. But, the use of solvent-based solutions is less desirable because of the potential for emissions of VOC and the environmental impact of waste disposal.

The CTC report on ultrasonic cleaning describes the benefits as well as the disadvantages of the methods. Besides the reduction in environmental hazards afforded by this process, the method also

reduces worker exposure to solvent, fire hazards in the cleanup area, and the inconvenience of hazardous waste handling. Also, cylinder cleanup is faster and less labor intensive, and downtime of the printing run is reduced. The process also improves cleaning effectiveness as well as product quality. The disadvantage of ultrasonic cleaning is the high initial cost of installing the system. However this cost may be somewhat offset by reductions in operating costs caused by the elimination of the need to purchase solvent. Ultrasonic cleaning methods also eliminate the expense of handling hazardous waste in facilities using biodegradable detergents and nonhazardous inks.

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APPENDIX B

SUMMARY OF CURRENT PROJECTS

Alaska Oil Spill Support

The Alaska Department of Environmental Conservation (ADEC) requested an immediate CTC evaluation of technical questions pertaining to the incineration of wastes resulting from the Alaska Oil Spill. The CTC formed a team to provide quick expert advice to Alaska, and project leaders visited the site, attended public hearings, and took part in public workshops. The CTC will provide the State of Alaska with a report documenting their recommendations in October 1989. (Al Vervaert, 919-541-5602; Blair Martin, 919-541-7504)

Economic Analysis of Lead Emission Controls

The CTC is evaluating additional control technology to reduce ambient air emissions at a primary lead smelter to levels necessary to attain the ambient air quality standard. The CTC will produce a report documenting its findings including an economic analysis of additional controls. The report will be available in October 1989. (Don Gillette, 919-541-5308)

Powder Coatings Technology Update

In pursuit of its goal to explore developing technology, the CTC is documenting the newest uses and technologies for powder coatings, which contain no VOC. Powder coating suppliers and equipment suppliers and users of the newest uses and technologies for powder coatings were surveyed. The report will summarize the results of the questionnaires and include a cost comparison of powder coating with other surface-coating technologies. The report will be available in October 1989. (Karen Catlett, 919-541-0835)

Excess Benzene Emissions

The CTC is responding to a request from Region 3 to determine excess benzene emissions. The project involves evaluation of the lead detection and repair program information at Chevron's Philadelphia refinery and calculating excess emissions resulting from extended delays in repairing leaks. A memorandum on the CTC's findings will be sent to Region 3 in December 1989. (David Markwordt, 919-541-0837)

NO_x Control Technology Data Sourcebook

The CTC is preparing a document to guide state and local agencies and EPA Regional Offices in reviewing permits for non-utility combustion sources. The sourcebook, which will include all fuels and include data gathered from several key vendors in Europe, will be complete in early 1990. (Charlie Sedman, 919-541-7700)

Formaldehyde Emissions from Manufacture of Veneer Wood Products

The state of Virginia asked the CTC for assistance in developing improved data on formaldehyde emissions from the preparation, application, and processing of veneer wood products. The report is scheduled for completion in early 1990. (Kelly Janes, 919-541-2852)

Waferboard Plant Control Evaluation

The CTC is assisting the State of Colorado in evaluating emission sources at waferboard plants. This effort is a result of requests by several states and Regional Offices. A report on the evaluations will be available in January 1990. (Les Evans, 919-541-5410)

Steam Stripping of Air Toxics

The CTC is developing a user-friendly PC program for evaluating control technology and determining potential air toxic emissions. The program uses the computerized process simulation program, Advanced System for Process Engineering (ASPEN), and will be available in March 1990. (Penny Lassiter, 919-541-5396)

Wastewater Treatment Facilities

The CTC is preparing a technical guidance document requested by several states and EPA Regions for controlling air emissions from the collection and treatment of industrial wastewater. Visits were made to a pharmaceutical facility and two pulp and paper facilities to gather data for characterizing the industry and choosing a plant for testing. The report documenting the CTC's findings will be available in March 1990. (Penny Lassiter, 919-541-5396)

"Handbook: Control Technologies for Hazardous Air Pollutants" (HAP Manual) Update

The CTC is updating the HAP Manual (EPA-625/6-86-014) for use by state and local agencies in selecting, evaluating, and determining the cost of controls for hazardous air pollutants from industrial and commercial sources. The update will be available in March 1990. (Carlos Núñez, 919-541-1156)

VOC Control Applications for the Flexible Packing Industry

The CTC is documenting VOC control applications in the flexible packaging industry. Phase I of the project identified sources, which will be evaluated in Phase II of the project, scheduled for completion in March 1990. (Karen Catlett, 919-541-0835)

Air Toxic Emissions from an Integrated Steel Plant

At the request of Region 8 the CTC is preparing a compilation of criteria and toxic pollutant emission factors for the iron and steel industry. The report will be available in April 1990. (Bob McCrillis, 919-541-2733)

Fiberglass Manufacturing

The CTC is conducting a preliminary study to define the manufacture of fiberglass marine structures. This project, a thorough assessment of the industry and related emission problems, will be available in April 1990. (Chuck Darvin, 919-541-7633)

Control of Condensibles

The CTC is providing support to the STAPPA/ALAPCO Air Toxics Subcommittee in acquiring a better understanding of condensibles from an air toxics perspective. A report on the CTC's findings will be available in April 1990. (Carlos Núñez, 919-541-1156)

Controlling Air Toxics (CAT), An Advisory System, Version 2

The CTC is revising CAT to include a screening option and a 20-30% reduction in the memory requirement. The CTC developed CAT, PC-based software, for evaluation of permit applications based on EPA's handbook: "Control Technologies for Hazardous Air Pollutants," EPA-625/6-86-014. The software calculates design and costs for eight control devices based on stream characteristics and control device parameters. Version 2 will be available in May 1990. (Carlos Núñez, 919-541-1156)

Electrostatic Precipitator (ESP) Models

The CTC in conjunction with EPRI is developing two ESP models. One is a full-feature ESP model with in-depth analysis capability for use by scientists and engineers The other model will be "user friendly," primarily for use by state and local agencies. The two models are scheduled for completion in May 1990. (Norman Plaks, 919-541-3084)

Condensibles Testing

The CTC is responding to requests by many states and STAPPA for a test method for condensible particulate matter. A high-sulfur-coal-fired power plant has been tested, and the results will be published in a technical document that will be available by May 1990. (Candace Sorrell, 919-541-1064)

Outdoor Abrasive Blasting

The Puget Sound Air Pollution Control Agency requested CTC assistance in calculating emission factors for PM10 and toxic metals from the abrasive blasting of outdoor structures. Some data have been gathered to develop emission factors, and additional testing is scheduled for 1990. (Larry Elmore, 919-541-5433)

Polystyrene Foam Manufacture

The CTC is producing a document for state and local agencies on control of VOC-blowing agents from polystyrene foam manufacturing. Phase I of the project is an initial study of the industry, which will result in recommendations for further studies to be conducted during Phase II of the effort. (Dave Beck, 919-541-5421)

Asphalt Roofing

The CTC is providing an evaluation of alternatives to asphalt roofing, which produces volatile organics and condensibles. The project is a response to several HOTLINE requests for information on alternatives to asphalt roofing. (Bob Borgwardt, 919-541-2336)

Arsine Scrubber Design

The CTC is evaluating the effectiveness of a scrubber for emissions of arsine at a semiconductor manufacturing plant. The report on the study, conducted for the San Diego County Air Pollution Control District in California, is complete. The final report is under review by the San Deigo County Air Pollution Control District. (Leslie Evans, 919-541-5410)

Maryland Printing Emissions

The CTC is conducting a study to determine the requirements and costs for testing emissions from catalytic incinerators used in the printing industry. Two Maryland sources will be visited, in the initial phase of the study, which may result in a more detailed evaluation. (Chester Vogel, 919-541-2827)